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charge feel that the investment of time, money and labor has paid for itself, for the interest we have aroused has been an inspiration to all of us and, we think, to many others. It has shown that science has a very strong hold upon the public and that the public appreciate the work of abstruse science, whether or not it shows immediate results from an economic standpoint.

RICHARD E. DODGE.

*THE MISSOURI BOTANICAL GARDEN.\**

DURING the year 1896 the ornamental features of the Garden were of the same general character as heretofore, and about the same number of species and nearly the same of individuals were cultivated for this purpose, in the open air, as in 1895. The house collections, on the other hand, especially that of orchids, have been considerably increased, both in size and variety. A conservative estimate by the Head Gardener shows that at present about two and one-half times as many species and named varieties of plants are cultivated as in 1889. At the end of 1895 an inventory of the plants in cultivation at the Garden showed that 3921 species and varieties other than annuals were cultivated at that time. During the past year, while considerable additions have been made, it is probable that certain species have dropped out of cultivation, so that in the absence of a special inventory it is possible to state merely that the number now in cultivation is unquestionably somewhat greater than that in 1895.

It is estimated that, for various temporary reasons, the number of visitors to the Garden during 1896 was scarcely as large as in the preceding year. On the open Sunday afternoon in June 10,598 persons passed the gate, and on the corresponding Sunday afternoon in September 13,589 visitors were

counted. So far as estimates can be made from the data at hand, the number of visitors to the Garden is now about one-half greater than in 1889, though, as no automatic register of visitors is kept at the gate, the estimates are not accurate.

As a result of the most destructive hail-storm that has ever been experienced at the Garden, some 6,000 lights of glass were broken on the 21st of May last, the falling glass doing incalculable damage to many of the plants, which were further exposed to the weather for a considerable time. Cacti and other plants which are sheltered under glass during the winter, but which had been placed in the rockeries and elsewhere before the storm, were either destroyed or so badly bruised that it is impossible even yet to count the final loss. Some idea of the force of the falling hail may be obtained from the statement that the ribbed glass on the roof of the Linnæan house, nearly a quarter of an inch thick, was in considerable part broken.

Closely following this storm, the tornado of May 27th, which caused great loss of life and property in and about St. Louis, devastated a considerable portion of the Garden. While the grounds, fortunately, were not actually traversed by the cyclonic funnel, but were exposed only to the strong northwest gale which accompanied it, the violence of the wind was such that a number of the structures on the grounds were either unroofed or totally wrecked, while some 450 trees, many of them of large size, were totally or practically destroyed, and a large percentage of those left standing were seriously broken. A more graphic view of the destruction of trees may be obtained from the statement that 186 cords of firewood have been prepared from the more workable trunks and larger branches of the trees removed. Aside from the direct injury, it is probable that no small number of those left have suffered from unwonted ex-

\*From advance sheets of the eighth annual report of the Director, Professor Wm. Trelease.

posure to the strong sunlight of last summer and the winds of the present winter, so that many more are almost certain to require removal during the next year or two.

During the period of time covered by this, report the herbarium has increased from 159,046 unmounted specimens, constituting the Engelmann and Bernhardt herbaria, to 258,629 mounted specimens, protected by impregnation with corrosive sublimate. The library, which at first contained considerably less than 5,000 volumes and pamphlets, has increased to 23,257, valued at nearly \$40,000.

Notwithstanding the provision of safe and, for the time being, ample quarters for the library and herbarium in the reconstructed city residence, it has not yet been found practicable to remove the numerous wood specimens, and other unattractive but necessary and valuable material, from the old museum building, so as to free the latter for other uses; nor has it proved possible to spare funds for the purchase of material and the salary of an assistant who should be charged with the installation and maintenance of a museum illustrating some branch of pure or applied botany, such as might be accommodated in this small building were it empty.

Aside from an increase in the plant-houses, and the accumulation of books, living and preserved specimens of plants and their parts, and a small collection of insects, no considerable facilities for research have been acquired at the Garden thus far, the instrumental equipment of the School of Botany being found available for all necessary use by the few Garden employees and pupils, and, as yet, no properly equipped permanent laboratory rooms have been provided, adequate temporary provision being made in the herbarium building and the plant-houses for such work as has been undertaken. While in some respects much remains to be done, such facilities as have

been secured thus far have been placed at the disposal of investigators, of whom one or more have occupied tables at the Garden for a period of from one month to a year, each season for several years past, three such investigators having been accommodated at the Garden during the current autumn and winter. By direction of the Board, a general announcement is made, by a widely distributed circular, in the early part of each year, that such facilities as the Garden possesses, or can readily acquire for any worthy piece of investigation, are freely placed at the disposal of competent investigators.

#### *THE GANODONTA OR PRIMITIVE EDENTATES WITH ENAMELLED TEETH.*

THE discovery of the forefoot of *Psittacotherium* in the upper division of the Puerco beds (New Mexico) is one of the most fortunate accidents in the recent history of paleontology, because of its remarkable likeness to the foot of the sloth. This likeness at once suggested to Dr. J. L. Wortman the relationship of *Psittacotherium* to the Gravigrada, or great Ground Sloths. Upon his return to the American museum from the field the entire collection was placed in his hands, and it soon appeared that a series of animals which had been referred to the Creodonta, to the Tillodontia and to other orders formed in reality a part of a genetic series pointing conclusively toward the modern sloths, especially towards *Megalonyx*. The evidence is summed up in Dr. Wortman's recent paper, as follows:

\* (1) In the skull there is great similarity in form; the muzzle is short, the sagittal crest is low, and the occipital plane slopes forwards as in *Myiodon*, *Megatherium* and *Megalonyx*. (2) The lower jaw is short, deep and robust, with a greatly enlarged coronoid, a prominent angle, and a

\* 'The Ganodonta, and their relationship to the Edentata.' Bull. Am. Mus. Nat. Hist., March 22, 1897.